

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for communications using interleaving, the method comprising:

interleaving elements of data in a source sequence to form an interleaved sequence, wherein adjacent elements in the interleaved sequence originally were separated by a first number of elements in the source sequence and originally adjacent elements in the source sequence are separated by ~~at least either~~ a second number of elements in the interleaved sequence or the second number plus one, wherein the first number is adjustable and the second number is at least one; and

transmitting the interleaved sequence of the elements of the data.

2. (Original) The method as set forth in claim 1 further comprising;

receiving the interleaved sequence; and

de-interleaving the elements of data in the interleaved sequence back to the source sequence for the elements of the data.

3. (Original) The method as set forth in claim 2 further comprising interpolating for any error in any of the elements of the data in the original sequence after the de-interleaving.

4. (Previously Presented) The method as set forth in claim 1 wherein the interleaving further comprises  $O(i) = S(h)$  where  $h = (i*K) \bmod N$ , if  $h$  is not already a member of  $H$  and  $O(i) = S(h)$  where  $h = (i*K) \bmod N + 1$  if  $h$  is already a member of  $H$ , where  $h$  denotes a location of one of the elements in the source sequence,  $H$  denotes a set of one or more computed  $h$  values,  $N$  is a number of the elements in the source sequence to be interleaved and is a whole number greater than 4,  $i$  denotes a location of one of the elements in the interleaved sequence,  $S$  denotes the source sequence,  $O$  the interleaved sequence and  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped.

5. (Previously Presented) The method as set forth in claim 1 wherein the interleaving further comprises initializing an index number  $BB$  to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $O(i) = S(h)$  where  $h = (i*K + BB) \bmod N$  and if  $h = BB$ , then add 1 to

BB and add 1 to h, where the index number BB is a whole number, i denotes a location of one of the elements in the interleaved sequence, h denotes a location of one of the elements in the source sequence, N is a number of the elements in the source sequence to be interleaved, S denotes the source sequence, O denotes the interleaved sequence, and K is a whole number greater than 1 and denotes the number of elements to be skipped.

6. (Previously Presented) The method as set forth in claim 2 wherein the de-interleaving further comprises initializing an index number BB to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $D(h) = O(i)$  where  $h = (i*K + BB)\bmod N$  and if  $h = BB$ , then add 1 to BB and add 1 to h, where the index number BB is a whole number, i denotes a location of one of the elements in the interleaved sequence, h denotes a location of one of the elements in the source sequence, N is a number of the elements in the source sequence to be interleaved, O denotes the interleaved sequence, K is a whole number greater than 1 and denotes the number of elements to be skipped, and D denotes a de-interleaved sequence.

7. (Currently Amended) A computer readable medium having stored thereon instructions for communications using interleaving which when executed by a processor, causes the processor to perform the steps of:

interleaving the elements of data in a source sequence to form an interleaved sequence, wherein adjacent elements in the interleaved sequence originally were separated by a first number of elements in the source sequence and originally adjacent elements in the source sequence are separated by ~~at least either~~ a second number of elements in the interleaved sequence or the second number plus one, wherein the first number is adjustable and the second number is at least one; and

transmitting the interleaved sequence of the elements of the data.

8. (Original) The computer readable medium as set forth in claim 7 further comprising;

receiving the interleaved sequence; and

de-interleaving the elements of data in the interleaved sequence back to the source sequence for the elements of the data.

9. (Original) The computer readable medium as set forth in claim 8 further comprising interpolating for any error in any of the elements of the data in the original sequence after the de-interleaving.

10. (Previously Presented) The computer readable medium as set forth in claim 7 wherein the interleaving further comprises  $O(i) = S(h)$  where  $h = (i*K) \bmod N$ , if  $h$  is not already a member of  $H$  and  $O(i) = S(h)$  where  $h = (i*K) \bmod N + 1$  if  $h$  is already a member of  $H$ , where  $h$  denotes a location of one of the elements in the source sequence,  $H$  denotes a set of one or more computed  $h$  values,  $N$  is a number of the elements in the source sequence to be interleaved and is a whole number greater than 4,  $i$  denotes a location of one of the elements in the interleaved sequence,  $S$  denotes the source sequence,  $O$  the interleaved sequence, and  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped.

11. (Previously Presented) The computer readable medium as set forth in claim 7 wherein the interleaving further comprises initializing an index number  $BB$  to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $O(i) = S(h)$  where  $h = (i*K + BB) \bmod N$  and if  $h = BB$ , then add 1 to  $BB$  and add 1 to  $h$ , where the index number  $BB$  is a whole number,  $i$  denotes a location of one of the elements in the interleaved sequence,  $h$  denotes a location of one of the elements in the source sequence,  $N$  is a number of the elements in the source sequence to be interleaved,  $S$  denotes the source sequence,  $O$  the interleaved sequence, and  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped.

12. (Previously Presented) The computer readable medium as set forth in claim 8 wherein the de-interleaving further comprises initializing an index number  $BB$  to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $D(h) = O(i)$  where  $h = (i*K + BB) \bmod N$  and if  $h = BB$ , then add 1 to  $BB$  and add 1 to  $h$ , where the index number  $BB$  is a whole number,  $i$  denotes a location of one of the elements in the interleaved sequence,  $h$  denotes a location of one of the elements in the source sequence,  $N$  is a number of the elements in the source sequence to be interleaved,  $O$  denotes the interleaved sequence,  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped, and  $D$  denotes a de-interleaved sequence.

13. (Currently Amended) A system for communications using interleaving, the system comprising:

a first interleaving processing system that interleaves elements of data in a source sequence to form an interleaved sequence, wherein adjacent elements in the interleaved sequence originally were separated by a first number of elements in the source sequence and originally adjacent elements in the source sequence are separated by at least either a second number of elements in the interleaved sequence or the second number plus one, wherein the first number is adjustable and the second number is at least one; and

a first communication system that transmits the interleaved sequence of the elements of the data.

14. (Original) The system as set forth in claim 13 further comprising:

a second communication system that receives the interleaved sequence; and

a second interleaving processing system that de-interleaves the elements of data in the interleaved sequence back to the source sequence for the elements of the data.

15. (Original) The system as set forth in claim 14 wherein the second interleaving processing system interpolates for any error in any of the elements of the data in the original sequence after the de-interleaving.

16. (Previously Presented) The system as set forth in claim 13 wherein the first interleaving processing system interleaves elements of data in a source sequence so that  $O(i) = S(h)$  where  $h = (i*K)modN$ , if  $h$  is not already a member of  $H$  and  $O(i) = S(h)$  where  $h = (i*K)modN + 1$  if  $h$  is already a member of  $H$ , where  $h$  denotes a location of one of the elements in the source sequence,  $H$  denotes a set of one or more computed  $h$  values,  $N$  is a number of the elements in the source sequence to be interleaved and is a whole number greater than 4,  $i$  denotes a location of one of the elements in the interleaved sequence,  $S$  denotes the source sequence,  $O$  the interleaved sequence, and  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped.

17. (Previously Presented) The system as set forth in claim 13 wherein the first interleaving processing system interleaves elements of data in a source sequence by initializing an index number BB to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $O(i) = S(h)$  where  $h = (i*K + BB)\text{mod } N$  and if  $h = BB$ , then add 1 to BB and add 1 to h, where the index number BB is a whole number, i denotes a location of one of the elements in the interleaved sequence, h denotes a location of one of the elements in the source sequence, N is a number of the elements in the source sequence to be interleaved, S denotes the source sequence, O the interleaved sequence, and K is a whole number greater than 1 and denotes the number of elements to be skipped.

18. (Previously Presented) The system as set forth in claim 14 wherein the second interleaving processing system de-interleaves elements of data in a source sequence by initializing an index number BB to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $D(h) = O(i)$  where  $h = (i*K + BB)\text{mod } N$  and if  $h = BB$ , then add 1 to BB and add 1 to h, where the index number BB is a whole number, i denotes a location of one of the elements in the interleaved sequence, h denotes a location of one of the elements in the source sequence, N is a number of the elements in the source sequence to be interleaved, O denotes the interleaved sequence, K is a whole number greater than 1 and denotes the number of elements to be skipped, and D denotes a de-interleaved sequence.

19. (Previously Presented) The method as set forth in claim 1 wherein the adjustable first number is changed to avoid interleaving one of the elements of data from the source sequence into the interleaved sequence that has already been interleaved into the interleaved sequence.

20. (Previously Presented) The computer readable medium as set forth in claim 7 wherein the adjustable first number is changed to avoid interleaving one of the elements of data from the source sequence into the interleaved sequence that has already been interleaved into the interleaved sequence.

21. (Previously Presented) The system as set forth in claim 13 wherein the adjustable first number is changed to avoid interleaving one of the elements of data from the

source sequence into the interleaved sequence that has already been interleaved into the interleaved sequence.

22. (Previously Presented) The method as set forth in claim 1 wherein the first number is adjustable before the interleaving and is fixed during the interleaving.

23. (Previously Presented) The computer readable medium as set forth in claim 7 wherein the first number is adjustable before the interleaving and is fixed during the interleaving.

24. (Previously Presented) The system as set forth in claim 13 wherein the first number is adjustable before the interleaving and is fixed during the interleaving.